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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,342	11/26/2001	Michael Scott Lamphere	13DV13913	9845

29827 7590 09/25/2003

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EXAMINER

WILKINS III, HARRY D

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 09/25/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,342

Applicant(s)

LAMPHERE ET AL.

Examiner

Harry D Wilkins, III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's provisional election of group 1 in paper no. 6 is noted.
2. Also, Applicant's arguments traversing the restriction requirement, in view of the newly amended claims, are found persuasive, and thus the restriction requirement is withdrawn and all of claims 1-20 will be examined on the merits.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Bruns et al (US 4,851,090).

Bruns et al teach (see abstract and Figures 1-18) a method of and apparatus for electrochemically machining a blisk.

Regarding claim 1, the method includes steps of mounting the blisk in a multiaxis electrochemical machine, followed by electrochemically machining a first row of blades. Bruns et al teach (see col. 16, lines 4-24) that the method may include a second machining step to create a second row of blades, thus forming a tandem blisk. The two steps of machining occur back-to-back without the removal of the blisk from the machining apparatus.

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Regarding claim 11, the apparatus includes means for mounting the blisk and means for electrochemically machining a row of blades. Bruns et al teach (see col. 16, lines 4-24) that the method may include a second machining step to create a second row of blades, thus forming a tandem blisk. The two steps of machining occur back-to-back without the removal of the blisk from the machining apparatus. Thus, the apparatus of Bruns et al teaches the claimed two means for electrochemical machining, as the machining means of Bruns et al are capable of performing both steps.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 2-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bruns et al (US 4,851,090) in view of Applicant's admission of prior art.

The teachings of Bruns et al are described above in paragraph no. 4.

Regarding claims 2 and 12, Bruns et al teach moving the blisk into a pair of electrodes. However, Bruns et al does not teach using two pairs of electrodes, merely teaching the use of one pair of electrodes for both rows of blades. However, the duplication of parts has been held to be obvious absent evidence that they produce new and unexpected results. See MPEP 2144.04.VI.B. In the instant case, the duplication of the electrode pairs would allow for easier fine tuning since, as admitted by Applicant (see paragraph 15) that in tandem blisks, the two rows of blades have different configurations. Thus, one of ordinary skill in the art would have duplicated the electrode pairs in order to optimize each electrode pair for the individual blades of the two rows.

Regarding claims 3 and 17, Applicant admits as prior art (see paragraphs 12-14) that the steps of setting up the apparatus of Bruns et al includes a first machining step on a scrap blisk (i.e.-sample), removing the blisk to inspect for dimensional tolerances and comparing the dimensions to the desired final dimensions. These steps are repeated until the blisk achieves the final desired dimensions. The next step is mounting the production blisk in the machine and machining it. Therefore, it would have been obvious to a routineer in the art to have operated the two electrode pair machine in the same manner.

Regarding claims 4, 8 and 13, it would have been within the expected skill of a routineer in the art to have set the two machining electrodes in different locations (planes) within the machine as the apparatus itself is bulky and it would be highly difficult to arrange the second means such that it would not interfere with the first means. By setting up the two means in different planes relative to each other, a

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routinier in the art would have added means for translating the position of the blisk from one means to the other.

Regarding claims 5 and 14, it would have been within the expected skill of a routinier in the art to have set up the two machining electrodes to be movable into communication with a fixed blisk because each machining electrode means is bulky and would interfere with the other means. Thus, each of the machining electrodes would require translating means.

Regarding claims 6 and 15, Bruns et al teach (see col. 5, lines 1-19) rotating the electrodes during machining. Thus, Bruns et al disclose means for rotating the electrode pairs during machining.

Regarding claim 7 and 16, Applicant admits as prior art (see paragraph 15) that in tandem blisks, the two rows of blades have different sizes and configurations. Thus, it would have been obvious to set up the first machining electrodes to create the first row of blades and to set up the second machining electrodes to create the second row of blades in order to independently optimize the processing of each row of blades.

Regarding claims 9 and 10, Applicant admits (see paragraph 12) that the test blisk could be either the production blisk (i.e.-blisk sample is the same as the tandem blisk) or a scrap blisk (i.e.-blisk sample is a different part than the tandem blisk).

Regarding claim 18, Bruns et al teach means for mounting the blisk and a pair of electrode tools with means for translating the tools in two axes and rotating about a third. However, Bruns et al do not teach the second pair of electrodes with translating/rotating means nor the means for translating the blisk from one electrode tool

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to the other. However, Bruns et al does not teach using two pairs of electrodes, merely teaching the use of one pair of electrodes for both rows of blades. However, the duplication of parts has been held to be obvious absent evidence that they produce new and unexpected results. See MPEP 2144.04.VI.B. In the instant case, the duplication of the electrode pairs would allow for easier fine tuning since, as admitted by Applicant (see paragraph 15) that in tandem blisks, the two rows of blades have different configurations. Thus, one of ordinary skill in the art would have duplicated the electrode pairs in order to optimize each electrode pair for the individual blades of the two rows. The second electrode tool would also have the translating/rotating means as claimed. Also, it would have been within the expected skill of a routineer in the art to have set up the two machining electrodes in different locations (planes) within the machine as the apparatus itself is bulky and it would be highly difficult to arrange the second means such that it would not interfere with the first means. By setting up the two means in different planes relative to each other, a routineer in the art would have added means for translating the position of the blisk from one means to the other.

Regarding claim 19, the apparatus of Bruns et al included means (54) for rotating the blisk to sequentially position the blades between the electrodes. It would have been within the expected skill of a routineer in the art to have set up the two machining electrodes in different locations (planes) within the machine as the apparatus itself is bulky and it would be highly difficult to arrange the second means such that it would not interfere with the first means. By setting up the two means in different planes relative

to each other, a routineer in the art would have added means for translating the position of the blisk from one means to the other.

Regarding claim 20, Bruns et al a method comprising electrochemically machining a first row of blades. However, Bruns et al does not teach using corresponding electrodes for machining a second row of blades. However, the duplication of parts has been held to be obvious absent evidence that they produce new and unexpected results. See MPEP 2144.04.VI.B. In the instant case, the duplication of the electrode pairs would allow for easier fine tuning since, as admitted by Applicant (see paragraph 15) that in tandem blisks, the two rows of blades have different configurations. Thus, one of ordinary skill in the art would have duplicated the electrode pairs in order to optimize each electrode pair for the individual blades of the two rows. By using two electrode tools, the method would have been able to be carried out without removing the blisk from the machine and without re-setting up the tools between the two sequences.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 703-305-9927. The examiner can normally be reached on M-Th 10:00am-8:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 703-308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

hdw

Harry D Wilkins, III
Examiner
Art Unit 1742

ROY KING 
SUPERVISORY PATENT EXAMINER
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